AMENDMENT TO THE CLAIMS

1.(**Original**) A compiler apparatus that translates a source program into a machine language program comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs the optimization by deciding array data allocated to a global memory region following a directive when the directive acquisition unit acquires the directive on the array data to be allocated to the global memory region.

2.(**Original**) The compiler apparatus according to Claim 1,

wherein the directive acquisition unit acquires designation of a maximum data size of array data to be allocated to a global memory region together with a directive for translating the source program, and

the optimization unit, out of array data declared by the source program, allocates array data whose maximum data size does not exceed the maximum data size to a global memory region and array data whose maximum data size exceeds the maximum data size to a memory region out of the global memory region.

3.(**Original**) The compiler apparatus according to Claim 1,

wherein the directive acquisition unit detects a directive for not allocating specific array data to the global memory region in the source program, and

the optimization unit allocates array data that are an object of a directive detected by the directive acquisition unit to a memory region out of the global memory region.

4.(**Original**) The compiler apparatus according to Claim 1,

wherein the directive acquisition unit detects a directive for allocating specific array data to the global memory region in the source program, and

the optimization unit allocates array data that are an object of a directive detected by the directive acquisition unit to the global memory region.

5.(**Original**) A computer-readable recording medium on which a source program described in a high-level language is recorded,

wherein the source program includes at least one of descriptions for directing a compiler that translates the source program into a machine language program (1) not to allocate a specific array data to a global memory region and (2) to allocate the specific array data to the global memory region.

6.(**Original**) A compiler apparatus that translates a source program into a machine language program comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs optimization on software pipelining following a directive when the directive acquisition unit acquires the directive on optimization by software pipelining.

7.(**Original**) The compiler apparatus according to Claim 6,

wherein the directive acquisition unit acquires a directive for not performing the optimization by software pipelining together with a directive for translating the source program, and

the optimization unit restrains the optimization by software pipelining of all the loop processing in the source program when the directive acquisition unit acquires the directive for not performing the optimization by software pipelining.

8.(**Original**) The compiler apparatus according to Claim 6,

wherein the directive acquisition unit detects a directive for not performing the optimization by software pipelining of a specific loop processing in the source program, and

the optimization unit restrains the optimization by software pipelining of loop processing that is an object of the directive detected by the directive acquisition unit.

9.(**Original**) The compiler apparatus according to Claim 6,

wherein the directive acquisition unit detects a directive for performing the optimization by software pipelining that removes a prolog portion and an epilog portion of a specific loop processing in the source program, and

the optimization unit performs the optimization by software pipelining of loop processing that is an object of the directive detected by the directive acquisition unit whenever possible to remove the prolog portion and the epilog portion.

10.(**Original**) The compiler apparatus according to Claim 6,

wherein the directive acquisition unit detects a directive for performing the optimization by software pipelining that does not remove the prolog portion and the epilog portion of a specific loop processing in the source program, and

the optimization unit performs the optimization by software pipelining of loop processing that is an object of the directive detected by the directive acquisition unit whenever possible not to remove the prolog portion and the epilog portion.

11.(**Original**) The compiler apparatus according to Claim 6,

wherein the directive acquisition unit detects designation of the number of iterations of specific loop processing in the source program, and

the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations.

12.(**Original**) The compiler apparatus according to Claim 11,

wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated, and

the optimization unit performs the optimization by software pipelining when the minimum number is equivalent to or larger than the number of iterations that overlap by software pipelining.

13.(**Original**) A computer-readable recording medium on which a source program described in a high-level language is recorded,

wherein the source program includes at least one of descriptions for directing a compiler that translates the source program into a machine language program (1) not to perform the optimization by software pipelining of a specific loop processing, (2) to perform optimization that removes a prolog portion and an epilog portion by software pipelining of the specific loop processing, and (3) to perform optimization that does not remove the prolog portion and the epilog portion by software pipelining of the specific loop processing.

14.(**Original**) A compiler apparatus that translates a source program into a machine language program comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs optimization by loop unrolling following a directive when the directive acquisition unit acquires the directive on the optimization by loop unrolling.

15.(**Original**) The compiler apparatus according to Claim 14,

wherein the directive acquisition unit acquires a directive for not performing the optimization by loop unrolling together with a directive for translating the source program, and

the optimization unit restrains the optimization by loop unrolling of all the loop processing in the source program when the directive acquisition unit acquires the directive for not performing the optimization by loop unrolling.

16.(**Original**) The compiler apparatus according to Claim 14,

wherein the directive acquisition unit detects a directive for performing the optimization by loop unrolling of a specific loop processing in the source program, and

the optimization unit performs the optimization by loop unrolling of loop processing that is an object of the directive detected by the directive acquisition unit.

17.(**Original**) The compiler apparatus according to Claim 14,

wherein the directive acquisition unit detects a directive for not performing the optimization by loop unrolling of a specific loop processing in the source program, and

the optimization unit restrains the optimization by loop unrolling of loop processing that is an object of the directive detected by the directive acquisition unit.

18.(**Original**) The compiler apparatus according to Claim 14,

wherein the directive acquisition unit detects designation of the number of iterations of specific loop processing in the source program, and

the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations.

19.(**Original**) The compiler apparatus according to Claim 18,

wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated, and

the optimization unit restrains generation of an escape code that is needed in the case of the number of the iterations being 0 when the minimum number is 1 or more.

20.(**Original**) The compiler apparatus according to Claim 18,

wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated, and

the optimization unit performs the optimization by loop unrolling when the minimum number is equivalent to or more than the number of development by the loop unrolling.

21.(**Original**) The compiler apparatus according to Claim 18,

wherein the designation of the number of the iterations guarantees that the loop processing is iterated only an even number of times, and

the optimization unit performs the optimization by loop unrolling assuming that the loop processing that is an object of designation detected by the directive acquisition unit is iterated only the even number of times.

22.(**Original**) The compiler apparatus according to Claim 18,

wherein the designation of the number of the iterations guarantees that the loop processing is iterated only an odd number of times, and

the optimization unit performs the optimization by loop unrolling assuming that the loop processing that is an object of designation detected by the directive acquisition unit is iterated only the odd number of times.

23.(**Original**) A computer-readable recording medium on which a source program described in a high-level language is recorded,

wherein the source program includes at least one of descriptions for directing a compiler that translates the source program into a machine language program (1) to perform the optimization by loop unrolling of a specific loop processing, (2) not to perform the optimization by loop unrolling of a specific loop processing, and (3) to require a guarantee on the number of iterations of a specific loop processing.

24.(**Original**) A compiler apparatus that translates a source program into a machine language program comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

wherein the optimization unit performs optimization on an "if" conversion following a directive when the directive acquisition unit acquires the directive on the "if" conversion.

25.(**Original**) The compiler apparatus according to Claim 24,

wherein the directive acquisition unit acquires a directive for not making an "if" conversion together with a directive for translating the source program, and

the optimization unit restrains the "if" conversion of all "if" structure sentences in the source program when the directive acquisition unit acquires the directive for not making the "if" conversion.

26.(**Original**) The compiler apparatus according to Claim 24,

wherein the directive acquisition unit detects a directive for making an "if" conversion of a specific "if" structure sentence in the source program, and

the optimization unit makes the "if" conversion of the "if" structure sentence that is an object of the directive detected by the directive acquisition unit.

27.(**Original**) The compiler apparatus according to Claim 24,

wherein the directive acquisition unit detects a directive for not making an "if" conversion of a specific "if" structure sentence in the source program, and

the optimization unit restrains the "if" conversion of the "if" structure sentence that is an object of the directive detected by the directive acquisition unit.

28.(**Original**) A computer-readable recording medium on which a source program described in a high-level language is recorded,

wherein the source program includes at least one of descriptions for directing a compiler that translates the source program into a machine language program (1) to make an "if" conversion to a specific "if" structure sentence and (2) not to make the "if" conversion to the specific "if" structure sentence.

29.(**Original**) A compiler apparatus that translates a source program into a machine language program comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

wherein the optimization unit performs optimization by allocating data in a memory region following a directive when the optimization unit acquires the directive on alignment of the array data to be allocated in a memory region.

30.(**Original**) The compiler apparatus according to Claim 29,

wherein the directive acquisition unit acquires a directive for alignment of array data of a special type together with a directive for translating the source program, and

the optimization unit allocates all the array data of the special type declared in the source program in the memory region so that its head address matches the alignment.

31.(**Original**) The compiler apparatus according to Claim 29,

wherein the directive acquisition unit acquires a directive for alignment of structure data together with a directive for translating the source program, and

the optimization unit allocates the structure data declared in the source program in the memory region so that its head address matches the alignment.

32.(**Original**) The compiler apparatus according to Claim 29,

wherein the directive acquisition unit detects designation of alignment of data that a pointer variable of argument shown by the name of a specific variable indicates in the source program and

the optimization unit performs the optimization assuming that the data that is an object of designation detected by the directive acquisition unit is allocated in the memory region by the designated alignment.

33.(**Original**) The compiler apparatus according to Claim 29,

wherein the directive acquisition unit detects designation of alignment of data that a local pointer variable shown by the name of a specific variable indicates in the source program and

the optimization unit performs the optimization assuming that the data that is an object of designation detected by the directive acquisition unit is allocated in the memory region by the designated alignment.

34.(**Currently Amended**) The compiler apparatus according to ~~any of Claims 30~33~~ claim 30,

wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.

35.(**Original**) A computer-readable recording medium on which a source program described in a high-level language is recorded,

wherein the source program includes at least one of descriptions for directing a compiler that translates the source program into a machine language program (1) to require a guarantee on alignment of data that a pointer variable of argument shown by the name of a specific variable indicates and (2) to require a guarantee on alignment of data that a local pointer variable shown by the name of a specific variable indicates.

36.(Original) A program for a compiler apparatus that translates a source program into a machine language program, the program causing a computer to function as:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs the optimization by deciding array data allocated to a global memory region following a directive when the directive acquisition unit acquires the directive on the array data to be allocated to the global memory region.

37.(Original) A program for a compiler apparatus that translates a source program into a machine language program, the program causing a computer to function as:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs optimization on software pipelining following a directive when the directive acquisition unit acquires the directive on optimization by software pipelining.

38.(Original) A program for a compiler apparatus that translates a source program into a machine language program, the program causing a computer to function as:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following an acquired directive,

wherein the optimization unit performs optimization by loop unrolling following a directive when the directive acquisition unit acquires the directive on the optimization by loop unrolling.

39.(**Original**) A program for a compiler apparatus that translates a source program into a machine language program, the program causing a computer to function as:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

wherein the optimization unit performs optimization on an "if" conversion following a directive when the directive acquisition unit acquires the directive on the "if" conversion.

40.(**Original**) A program for a compiler apparatus that translates a source program into a machine language program, the program causing a computer to function as:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

wherein the optimization unit performs optimization by allocating data in a memory region following a directive when the optimization unit acquires the directive on alignment of the array data to be allocated in a memory region.

41.(**New**) The compiler apparatus according to claim 31,

wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.

42.(**New**) The compiler apparatus according to claim 32,

wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.

43.(**New**) The compiler apparatus according to claim 33,

wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.